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Attached to this paper is the Applicant Initiated Interview Request Form. The Applicant thanks the Examiner and the Supervisory Examiner for their time and consideration of the issues raised and discussed at the telephone interview. Presented immediately below is the Applicants' statement of the reasons presented at the interview as warranting favorable action as required by 37 C.F.R. 1.133(b).

The Applicant's representative first briefly discussed the Examiner's comments on piecemeal prosecution in the pending Office Action. The Applicant's representative noted that the comments on piecemeal prosecution presented by the Applicant in the response to the previous Office Action were not made to traverse the rejections, but to remind the Examiner of the obligations for examination under the Patent Office's own rules. Since this argument did not directly relate to the allowability of any of the claims, no agreement on this issue was necessary. However, the additional remarks below present an expanded discussion by the Applicant on this issue.

The Applicant's representative then discussed the rejection under 35 U.S.C. 112, second paragraph. The arguments raised at the interview essentially match the arguments presented below in the discussion of claims rejections under 35 U.S.C. 112, second paragraph. No specific agreement was reached on the 35 U.S.C. 112, second paragraph, but Examiner Ip did indicate that Claims 9 and 18 are allowable, thus indicating that the 35 U.S.C. 112, second paragraph, rejection no longer applied to these claims (and the claims dependent on Claims 9 and 18).

Examiner Ip indicated that Claim 9 is allowable based on the recitation of "applying the electrical signal to said laser cavity to produce an electric field uniformly and simultaneously changing the index of refraction along the length of the laser cavity in proportion to the amplitude of the electrical signal." Examiner Ip also indicated that Claim 18 is also allowable. However, Examiner Ip indicated that Claims 1 and 24 were not allowable. Hence, Examiner Ip indicated that the application would be in condition for allowance if Claims 1 and 24 were cancelled.

Examiner Ip specifically cited Figure 1 of the present application as disclosing the apparatus as claimed in Claim 1. Specifically, he noted that Figure 1 appeared to disclose a laser cavity and

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means for applying a uniform electric field across said laser cavity. The Applicant's representative noted that the Applicant's Admitted Prior Art had not been cited in the present Office Action. However, the Applicant's representative asserted that Figure 1 and the related disclosure in the specification did not disclose "said electric field propagating in a direction substantially perpendicular to the propagation of laser light within the laser cavity" as recited in Claim 1. Examiner Ip disagreed and stated that Figure 1 disclosed the apparatus claimed in Claim 1 and similarly claimed in Claim 24.

However, the Applicant again submits that the Applicant's Admitted Prior Art, as shown in Figure 1 of the present application and described in the related text of the application, does not teach, disclose, or suggest the invention as claimed in Claims 1 and 24. Specifically, it is asserted that Figure 1 and the related text does not disclose "means for applying a uniform electric field across said laser cavity, said electric field propagating in a direction substantially perpendicular to the direction of propagation of laser light within the laser cavity and having substantially the same intensity along the length dimension of the laser cavity at any one point in time." Therefore, the Applicant requests that the rejection of Claims 1 and 24 be reconsidered.

In summary of the telephone interview, Examiner Ip indicated that Claims 9 and 18 are allowable, but the rejection of Claims 1 and 24 would probably be maintained. The Applicant declines to cancel or otherwise amend Claims 1 and 24 at this time. Therefore, the arguments presented below respond to the claim rejections as set forth in the Office Action of September 2, 2003.

Comments on Examiner's Response to Arguments in the Previous Office Action.

Before addressing the Examiner's rejections as set forth in the Office Action of September 2, 2003, comments on the Examiner's Response to the Arguments set forth in the Applicant's previous response are believed to be warranted, especially the Examiner's remarks as to piecemeal prosecution. It appears that the Examiner has taken umbrage to the Applicant's reminder in that previous response that the Examiner should avoid piecemeal prosecution. In his remarks, the Examiner goes on at length describing the goals, rights, and powers of the Patent Office and the Examiner. Regarding these comments, the Applicant would not disagree.

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The Examiner further states that "[t]here is no statutory basis for the Applicant's argument, nor is there any basis in case law." With this statement, it appears that the Examiner misunderstood the Applicant's arguments regarding improper piecemeal prosecution. The Applicant did not intend these arguments as a basis for overcoming the rejection, but as a basis for pointing out that the Examiner made rejections in a second Office Action, especially those related to 35 U.S.C. 112, second paragraph, that could have been and, if proper, should have been made in the first Office Action.

The Applicant further notes that the United States Patent and Trademark Office has recognized the impact that improper piecemeal prosecution has on the pendency of a patent application and the costs incurred by both the applicant and the Patent Office since the Patent Office has dedicated a specific section of the MPEP, Section 707.07(g), to "Piecemeal Examination." The Examiner is further reminded of the regulations as set forth in 37 C.F.R. 1.104(a)(1), which states, in part, "the examination shall be complete with respect both to compliance of the application or patent under reexamination with the applicable statutes and rules and to the patentability of the invention as claimed, as well as with respect to matters of form." (Underlining added for emphasis). The Applicant respectfully requests that if the Examiner believes that he can not comply with these regulations, another examiner be assigned to this application.

CLAIM REJECTIONS

35 U.S.C. § 112

On page 2 of the Office Action, the Examiner again rejects Claims 1 - 26 under 35 U.S.C. § 112, second paragraph, "as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention." Specifically, the Examiner asserts that Claims 1 - 26 are incomplete for omitting essential elements. The Examiner asserts that the omitted elements are "means of generating laser emission in the structures." The Applicant respectfully disagrees that essential elements are omitted from the claims and that such an alleged omission is a proper basis for a rejection under 35 U.S.C. 112, second paragraph.

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In the previous response, the Applicant asserted that the Examiner had not sufficiently set forth a basis for rejecting Claims 1 - 26 under 35 U.S.C. 112, second paragraph. Specifically, the Applicant submitted that the Examiner did not explain whether the rejection was based on indefiniteness or on the failure to claim what the applicants regard as their invention. The Applicant again notes that the rejection on page 2 of the Office Action does not appear to indicate whether the rejection is based on indefiniteness or on the failure to claim. However, on page 8 of the Office Action, the Examiner states "that if an essential element is not included in the structure, then the claim is indefinite ..." Therefore, the Applicant assumes that the Examiner is rejecting Claims 1 - 26 under 35 U.S.C. 112, second paragraph, based on indefiniteness and not based on failure to claim. Hence, the arguments set forth below address the rejection based on this assumption. If this assumption is incorrect, the Applicant respectfully requests that the Examiner issue a further Office Action in which the basis for the rejection under 35 U.S.C. 112, second paragraph is more clearly stated.

The Applicant again submits that the Examiner has not followed the guidelines for rejecting claims under 35 U.S.C. 112, second paragraph, as set forth in MPEP 2172.01, which is specifically cited by the Examiner. As explained in MPEP 2172.01, a rejection under 35 U.S.C. 112, second paragraph, requires that it be shown that the rejected claim "fails to interrelate essential elements of the invention as defined by applicant(s) in the specification." The Examiner has not asserted that there is a failure to interrelate essential elements. Instead, the Examiner has alleged that essential elements are omitted. In the Response to Arguments section of the Office Action, the Examiner asserts that the MPEP "appears to be ambiguous" because a rejection should be made under 35 U.S.C. first paragraph, while the MPEP form paragraphs state that the rejection should be made under 35 U.S.C. 112, second paragraph.

The Applicant submits that the MPEP is not ambiguous. The MPEP appears to be quite clear, notwithstanding the MPEP form paragraphs. The first paragraph of MPEP 2172.01 states "[a] claim which omits matter disclosed to be essential to the invention as described in the specification or in other statements of record may be rejected under 35 U.S.C. 112, first paragraph, as not enabling." The second paragraph of MPEP 2172.02 states "[i]n addition, a claim which fails to interrelate essential elements of the invention as defined by applicant(s) in

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the specification may be rejected under 35 U.S.C. 112, second paragraph, for failure to point out and distinctly claim the invention." The Examiner has cited MPEP 2172.01 and rejects the claims under 35 U.S.C. 112, second paragraph. Therefore, it must be assumed that the Examiner is asserting that the "claim fails to interrelate essential elements of the invention as defined by applicant in the specification." However, the Applicant submits that the Examiner has not shown where the Applicant has defined "means of generating laser emission in the structures" in the specification as being an essential element. Hence, the Applicant submits that the Examiner has not met the guidelines for rejecting the claims under 35 U.S.C. 112, second paragraph, and as explained by MPEP 2172.01, cited by the Examiner.

The Examiner further asserts that "common sense dictates that if an essential element is not included in the structure, then the claim is indefinite in that it is claiming a device without including the necessary structure for that device to exist." The Applicant respectfully disagrees that such an assertion is "common sense." Applying that "common sense" would appear to indicate that when a car is claimed, the claim to a car must recite an engine, wheels, a chassis, and other essential elements necessary for the car to exist. Applying that "common sense" to a claim to a laser would also appear to indicate that not only should a gain element be included, but a power supply should also be included, since a claimed laser without a power supply could not really operate as a laser.

The Applicant further notes that Examiner Menefee does not appear to be consistent in his apparent requirement that claims for laser must include a gain element. Specifically, the Applicant respectfully directs the Examiner's attention to Claim 1 of U.S. Patent No. 6,556,611, granted April, 2003, which recites:

1. A diode laser comprising:
 - (1) an output surface;
 - (2) a reflection surface substantially parallel to, and offset from, said output surface, the output surface and reflection surface defining a laser cavity;
 - (3) a first DBR grating with the laser cavity, and disposed 45 degrees to the local longitudinal axis of the laser cavity; and
 - (4) a second DBR grating within the laser cavity, and disposed at 45 degrees to the laser cavity.

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Examiner Menefee is listed as the assistant examiner for U.S. Patent No. 6,556,611. Claim 1 claims "a diode laser," but it does not appear that Claim 1 recites "any means of generating laser emission in the structures," that is, it does not appear that Claim 1 recites an "active medium that will generate light." Given that Examiner Menefee apparently allowed Claim 1 in U.S. Patent No. 6,556,611, the Applicant fails to understand how the Examiner can take a contrary position with respect to the present application.

The Applicant submits that the proper inquiry for a rejection under 35 U.S.C. 112, second paragraph is "whether the scope of the claim is clear to a hypothetical person possessing the ordinary level of skill in the pertinent art." See MPEP 2171. Further, the Board of Patent Appeals and Interfaces has stated:

In rejecting a claim under the second paragraph of 35 USC 112, it is incumbent on the examiner to establish that one of ordinary skill in the pertinent art, when reading the claims in light of the supporting specification, would not have been able to ascertain with a reasonable degree of precision and particularity the particular area set out and circumscribed by the claims.

Ex parte Wu, 10 USPQ2d 2031, 2033 (B.P.A.I. 1989) (citing *In re Moore*, 439 F.2d 1232, 169 USPQ 236 (C.C.P.A. 1971)). Still further, the Federal Circuit Court of Appeals has found that if the claims, read in the light of the specification, reasonably apprise those skilled in the art of the use and scope of the invention, and if the language is as precise as the subject matter permits, the claims are definite under 35 U.S.C. 112, second paragraph. *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624, 224 USPQ 634, 641 (Fed. Cir. 1985). The Applicant submits that the Examiner has made no showing that one skilled in the art would not understand the scope of the rejected claims.

In the Response to Arguments section of the Office Action, the Examiner asserts that "one skilled in the art reading the specification would know that in order for the laser to be a laser, there must be some gain medium that will perform the lasing action." Therefore, it appears that the Examiner is admitting that one skilled in the art would understand the scope of the claims, if one skilled in the art understands that "there must be some gain medium." Therefore, the Applicant submits that the Examiner, instead of providing rationale for a rejection under 35

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U.S.C. 112, second paragraph, has provided support for showing that the claims meet the requirements of 35 U.S.C. 112, second paragraph.

If the Examiner is asserting that the claims do not recite a workable invention, the Examiner is reminded that there is no requirement under U.S. patent law that the claims recite a workable invention. See, for example, *Miles Laboratories Inc. v. Shandon Inc.*, 27 USPQ2d 1123 (CAFC 1993). The *Miles* court held that an expert's opinion as to the workability of an invention was irrelevant to definiteness under 35 U.S.C. 112, second paragraph. *Id.* at 1126. The *Miles* court stated that "the invention's operability may say nothing about a skilled artisan's understanding of the bonds (sic) of the claim." Please note that the Applicant does not admit that the claims do not recite a workable invention. The Applicant merely asserts that a rejection under 35 U.S.C. 112, second paragraph, based on the workability of a claimed invention is improper.

Finally, the Applicant notes that the Examiner has not cited any case law for his assertion that the alleged failure to include an "essential element" in a claim renders the claim indefinite under 35 U.S.C. 112, second paragraph. The Examiner merely cites to some "ambiguous" section of the MPEP. The Applicant submits that the Examiner's failure to cite case law is because there is no such case law. The Examiner is directed to Judge Newman's concurrence in *Reiffen v. Microsoft Corp.*, 214 F.2d 1342, 54 USPQ2d 1915 (Fed. Cir. 2000), a case in which the Federal Circuit did not rule on whether there is an "essential elements test" under U.S. patent law. However, Judge Newman stated that the proposition that a patentee must include in every claim each and every element that was described as part of the invention, whether or not the element is necessary for patentability of the claim, was not a correct statement of the law. 54 USPQ2d. at 1918. Judge Newman also stated:

Section 112, ¶2 instructs the applicant to "distinctly claim [] the subject matter which the applicant regards as his invention." This does not automatically require inclusion in every claim of every element that is part of the device or its operation. (underlining added for emphasis). 54 USPQ2d. at 1918.

Judge Newman further stated:

When the claim is supported by the patent's disclosure, is adequately distinguished from the prior art, and otherwise meets the statutory requirements of

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patentability, neither law nor policy requires that the claim contain all the elements described in the specification as part of the new machine or method. 54 USPQ2d. at 1919.

Therefore, the Applicant submits that the rejection of Claims 1 - 26 under 35 U.S.C. 112, second paragraph is improper. The Applicant submits that: (1) the Examiner has not meet the requirements set forth in MPEP 2172.01 for such a rejection; (2) the Examiner has taken inconsistent positions as to whether the alleged element is "essential;" (3) there is no workability requirement under U.S. patent law; and (4) there is no "essential elements test" under U.S. patent law. The Applicant submits that the Examiner has failed to establish a *prima facie* basis for the rejection of Claims 1 - 26 under 35 U.S.C. 112, second paragraph. Based on the telephone interview, the Applicant believes that the Examiner has at least withdrawn the rejection of Claims 9 and 18, under 35 U.S.C. 112, second paragraph. However, the Applicant respectfully requests that the rejection of all pending claims on this ground be withdrawn.

Claim Rejections - 35 U.S.C. §102

The Applicant notes that this is a third non-final Office Action and Claims 1- 8 have not been amended since being originally filed. The Applicant further notes that the two references cited by the Examiner in this latest rejection of the claims under 35 U.S.C. 102(b) were available to the Examiner at the time of both previous Office Actions. The Examiner's remarks in this Office Action notwithstanding, the Applicant reminds the Examiner of the requirements under 37 C.F.R. 1.104(a)(1) that "on taking up an application for examination [], the examiner shall make a thorough study thereof and shall make a thorough investigation of the available prior art relating to the subject matter of the claimed invention." Citation of these two references in this third non-final Office Action, when these two references were available to the Examiner at the time of the previous Office Action, again gives the appearance of improper piecemeal prosecution.

Further, in the rejection of the claims under 35 U.S.C. 102, the Examiner merely appears to restate the features as recited in the rejected claims. The Examiner has provided no indication as to where in the cited references the alleged disclosure is made, other than a reference to the abstract of one of the cited references. The Examiner is reminded that, under 37 C.F.R.

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1.104(c)(2), "[w]hen a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable." By merely parroting the language of the rejected claims without showing where the cited references teach each and every element of the rejected claims, the Applicant submits that the Examiner has not established a *prima facie* case of anticipation of the rejected claims by the cited references. Therefore, the Applicant submits that the rejection of Claims 1-3, 5-7, 9-11, 13-15, 18, 20-22 and 24 under 35 U.S.C. 102(b) should be withdrawn on this grounds alone. However, to help expedite the prosecution of this application, the Applicant traverses the rejection of the claims under 35 U.S.C. 102 based on the individual references as set forth below.

Based on Scalise, et al. (US 5,475,703)

The Examiner rejects claims 1-3, 6, 9, 11, 13, and 15 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,475,703 to Scalise et al. As stated in MPEP 2131.01, "a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," quoting *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The Applicant submits that the Examiner has not shown that Scalise teaches each and every element as set forth in the rejected claims. During the telephone interview on November 19, 2003, Examiner Ip indicated that Claim 9 would be allowable, hence the discussion below addresses Claim 1 and the claim dependent on Claim 1.

Claims 1 and 9

During the telephone interview on November 19, 2003, Examiner Ip indicated that Claim 9 would be allowable, hence the discussion below addresses Claim 1.

The Examiner asserts that Scalise discloses "means for applying a uniform electric field a uniform electric field across said cavity, said electric field propagating substantially perpendicular to the direction of the propagation of laser light." The Applicant submits that the Examiner has not shown that Scalise discloses "said electric field propagating substantially perpendicular to the direction of the propagation of laser light." The Examiner has not cited any

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specific portion of Scalise that discloses the direction of propagation of an electric field. Scalise appears to disclose a waveguide that completely encloses a laser cavity. See, for example, Fig. 1d, and the associated text in the description. As such, one skilled in the art might understand Scalise to disclose an electric field that propagates in the longitudinal direction of the waveguide, which is parallel to the direction of propagation of laser light in the laser cavity disclosed by Scalise. Therefore, the Applicant submits that the Examiner has not shown that Scalise teaches "said electric field propagating substantially perpendicular to the direction of the propagation of laser light."

The Applicant submits that the Examiner has not shown that Scalise teaches each and every element as set forth in Claim 1. If the Examiner disagrees, he is respectfully requested to specifically point out and clearly explain where Scalise discloses all the elements as set forth in Claims 1. Otherwise, the Applicant requests that the rejection of Claim 1 based on Scalise be withdrawn.

Claim 2

In regard to Claim 2, the Examiner asserts that even though Scalise does not explicitly state that the means for applying the electric field comprise a traveling wave structure, "by definition the electric field is formed as a traveling wave." What definition is the Examiner relying on to conclude that the electric field is formed as a traveling wave? According to the *McGraw-Hill Dictionary of Scientific and Technical Terms*, 3rd ed., McGraw-Hill Book Company, 1984, p. 1674, the term "traveling wave" is defined as "a wave in which energy is transported from one part of a medium to another, in contrast to a standing wave." The Applicant submits that, according to this definition, an electric field can be formed as either a traveling wave or standing wave. Therefore, the Examiner's "definition" does not show that Scalise discloses a traveling wave structure as claimed in Claim 2.

Claim 3

In regard to Claim 3, the Examiner asserts that "the traveling wave structure comprises electrodes with the cavity disposed there between." However, Claim 3 recites, in part, "said

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traveling wave structure comprises a first electrode and a second electrode." To reject Claim 3 based on Scalise, the Examiner should be able to point out the portion of Scalise which discloses "a first electrode and a second electrode." Otherwise, the Applicant requests that the rejection of Claim 3 based on Scalise be withdrawn.

Claims 6, 11, 13 and 15

As indicated above, during the telephone interview of November 19, 2003, Examiner Ip indicated that Claim 9 was allowable. Hence, the Applicant submits that Claims 11, 13 and 15, dependent either directly or indirectly on Claim 9, are also allowable.

The Applicant submits that the Examiner has not shown that Claim 6 is anticipated by Scalise, since this claim depends on Claim 1 and, as discussed above, the Examiner has not shown anticipation of Claim 1. Therefore, the Applicant respectfully requests that the Examiner withdraw the rejection of Claims 6, 11, 13 and 15.

Based on Wight

The Examiner rejects claims 1-3, 5-7, 9-11, 13-15, 18, 20-22, and 24 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,082,342 to Wight et al. The Applicant submits that the Examiner has not shown that Wight teaches each and every element as set forth in the rejected claims.

Claims 1 and 9

During the telephone interview on November 19, 2003, Examiner Ip indicated that Claim 9 would be allowable, hence the discussion below addresses Claim 1.

Regarding Claim 1, The Examiner asserts that Wight discloses "a laser cavity comprising an electrically sensitive material." Where does Wight make such a disclosure? Wight appears to disclose "an electro-optic waveguide device of the kind appropriate inter alia for optical beam steering applications." See col. 1, ll. 6 - 8. Wight further discloses that the disclose device may be used to receive an output from a pulsed laser. See, for example, col. 6, ll. 20-22. However, it

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is entirely unclear to the Applicant which component, element, or portion of the apparatus disclosed by Wight may be categorized as "a laser cavity" as claimed in Claim 1.

Further, regarding Claim 1, the Examiner asserts that Wight discloses "means for applying a uniform electric field across said cavity, said electric field propagating substantially perpendicularly to the direction of the propagation of laser light." Where does Wight disclose a means for applying a uniform electric field? Where does Wight disclose the direction of propagation of the electric field?

The Applicant submits that the Examiner has not shown in the Office Action how Wight teaches each and every element as set forth in Claims 1. If the Examiner disagrees, he is respectfully requested to specifically point out and clearly explain where Wight discloses all the elements as set forth in Claim 1. Otherwise, the Applicant requests that the rejection of Claim 1 based on Wight be withdrawn.

Claim 2

In regard to Claim 2, the Examiner asserts that even though Wight does not explicitly state that the means for applying the electric field comprise a traveling wave structure, "by definition the electric field is formed as a traveling wave." What definition is the Examiner relying on to conclude that the electric field is formed as a traveling wave? According to the *McGraw-Hill Dictionary of Scientific and Technical Terms*, 3rd ed., McGraw-Hill Book Company, 1984, p. 1674, the term "traveling wave" is defined as "a wave in which energy is transported from one part of a medium to another, in contrast to a standing wave." The Applicant submits that, according to this definition, an electric field can be formed as either a traveling wave or standing wave. Therefore, the Examiner's "definition" does not show that Wight discloses a traveling wave structure as claimed in Claim 2.

Claim 3

In regard to Claim 3, the Examiner asserts that "the traveling wave structure comprises electrodes with the cavity disposed there between." However, Claim 3 recites, in part, "said

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traveling wave structure comprises a first electrode and a second electrode." To reject Claim 3 based on Wight, the Examiner should be able to point out the portion of Wight which discloses "a first electrode and a second electrode." Otherwise, the Applicant requests that the rejection of Claim 3 based on Wight be withdrawn.

Claims 18 and 24

During the telephone interview on November 19, 2003, Examiner Ip also indicated that Claim 18 would be allowable, hence the discussion below addresses Claim 24.

Regarding Claim 24, the Examiner asserts that because Wight allegedly discloses an integrated interferometer, "there are longitudinally coincident gain and phase sections." What support does the Examiner have for the apparent conclusion that an integrated interferometer discloses longitudinally coincident gain and phase sections? If there is such a disclosure in Wight, the Applicant respectfully point out the portion of Wight with such a teaching. If the Examiner is relying upon facts within his personal knowledge, the Applicant respectfully requests that the Examiner provide an affidavit to that effect, as provided under 37 C.F.R. 1.104(d)(2).

Otherwise, the Applicant requests that the rejection of Claim 24 based on Wight be withdrawn.

Claims 5, 10, and 21

As indicated above, during the telephone interview of November 19, 2003, Examiner Ip indicated that Claims 9 and 18 were allowable. Hence, the Applicant submits that Claims 10 and 21, directly dependent on Claims 9 and 18, respectively, are also allowable.

The Applicant submits that the Examiner has not shown that Claim 5 is anticipated by Wight, since this claims depends on Claim 1 and, as discussed above, the Examiner has not shown anticipation of Claim 1 by Wight. Therefore, the Applicant requests that the Examiner also withdraw the rejection of Claims 5, 10 and 21.

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Claims 6, 11, 13 and 22

As indicated above, during the telephone interview of November 19, 2003, Examiner Ip indicated that Claims 9 and 18 were allowable. Hence, the Applicant submits that Claims 11, 13 and 22, dependent, directly or indirectly, on either Claim 9 or Claim 18, are also allowable.

The Applicant submits that the Examiner has not shown that Claims 6 is anticipated by Wight, since this claim depends on Claim 1 and, as discussed above, the Examiner has not shown anticipation of Claim 1 by Wight. Therefore, the Applicant requests that the Examiner also withdraw the rejection of Claims 6, 11, 13 and 22.

Claims 7, 14 and 15

As indicated above, during the telephone interview of November 19, 2003, Examiner Ip indicated that Claims 9 and 18 were allowable. Hence, the Applicant submits that Claims 14 and 15, dependent, directly or indirectly, on Claim 9, are also allowable.

The Applicant submits that the Examiner has not shown that Claims 7, 14 and 15 are anticipated by Wight, since these claims depend, either directly or indirectly, on Claims 1 or 9 and, as discussed above, the Examiner has not shown anticipation of Claim 1 and 9 by Wight. Therefore, the Applicant requests that the Examiner also withdraw the rejection of Claims 7, 14 and 15 based on Wight.

Claim 20

As indicated above, during the telephone interview of November 19, 2003, Examiner Ip indicated that Claim 18 was allowable. Hence, the Applicant submits that Claim 20, dependent on Claim 18, is also allowable.

Further, the Examiner states that "Shipman shows on at least one side of the cavity the electrode stops at the edge of the external cavity." However, Shipman was cited in the previous Office Action, and the Examiner states in the present Office Action that the rejections of the previous Office Action have been withdrawn. Therefore, the Applicant submits that the rejection of

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Claim 20 on the stated rationale is invalid. If the Examiner meant to refer to Wight, the Applicant respectfully requests that the Examiner specifically point out and clearly explain where Wight discloses all the elements as set forth in Claim 20.

Claim Rejections - 35 U.S.C. 103(a)

The Examiner rejects Claims 4, 8, 12, 16, 17, 19 23 and 25 - 26 under 35 U.S.C. 103(a) as being made obvious by one or more cited references, either alone, or in combination with other cited references. The Applicant submits that since these claims depend, either directly or indirectly, upon the independent claims discussed above and that since the Examiner has not shown that each and every element of the independent claims is taught by cited references, the Examiner has not shown that the dependent claims are made obvious by the cited references. Therefore, the Applicant requests that the Examiner withdraw the rejection of these claims under 35 U.S.C. 103(a).

The Applicant further submits that the Examiner has not established a *prima facie* case of obviousness for the claims rejected under 35 U.S.C. 103(a). The Applicant notes:

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The Applicant submits that a *prima facie* case of obviousness has not been established for the reasons set forth below.

Claims 4 and 16 based on Scalise in view of Donon

As indicated above, during the telephone interview of November 19, 2003, Examiner Ip indicated that Claim 9 was allowable. Hence, the Applicant submits that Claim 16, dependent on Claim 9, is also allowable.

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The Examiner rejects Claim 4 under 35 U.S.C. 103(a) as being unpatentable over Scalise in view of Donon (U.S. 4,258,335). The Examiner asserts that "transmission lines provide good excitation and may replace the electrodes of Scalise and Donon." The Applicant notes that the Examiner has not provided any specific support for the assertion that "transmission lines provide good excitation." The Applicant submits that this bare assertion, without specific support in the references or a specific citation to knowledge generally available to one skilled in the art is insufficient to combine the references in the manner done by the Examiner.

Further, the Applicant notes that Claim 4 recites, in part, "wherein said traveling wave structure comprises a transmission line having a first line and a second line, wherein the laser cavity is disposed between the first line and the second line, the first line and the second line having widths greater than or equal to the length dimension of the laser cavity." Scalise appears to disclose a closed waveguide, see, for example, Figs. 1c and 1d, while Donon discloses a flat plate transmission line formed by an insulating plate 7 placed between a first metal plate divided into two distinct portions 2, 3 and a second metal plate 7 (see Donon, col. 2, lines 14 - 28). Hence, Donon discloses a gap in the first metal plate, while Shipman does not disclose such a gap. Therefore, one skilled in the art would not be motivated to combine the references in the manner done by the Examiner, due to the radically different structures disclosed in the references. Further, one skilled in the art would not be motivated to combine the references to arrive at the features recited in Claim 4. Therefore, the Applicant submits that the Examiner has not established a *prima facie* case of obviousness based on the combination of Scalise and Donon. Hence, the Applicant respectfully requests that the rejection of Claims 4 and 16 be withdrawn.

Claims 8, 12, 17, 23 and 25-26 based on Wight

As indicated above, during the telephone interview of November 19, 2003, Examiner Ip indicated that Claims 9 and 18 were allowable. Hence, the Applicant submits that Claims 12, 17 and 23, dependent, directly or indirectly, on either Claim 9 or Claim 18, are also allowable.

The Examiner rejects Claims 8 and 25-26 under 35 U.S.C. 103(a) as being unpatentable over Wight. The Examiner admits that the features recited in these claims are not disclosed in Wight,

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but appears to assert that the teachings of Wight can be modified to arrive at these features based solely on knowledge generally available to one of ordinary skill in the art. The Applicant again asserts that the Examiner has not shown that Wight discloses each and every element as set forth in the independent claims, so the sole reliance on this reference for the rejection of Claims 8 and 25-26 is improper.

The Applicant also submits that the rejection of Claims 8 and 25-26 under 35 U.S.C. 103(a) based on Wight is improper because the Examiner has not shown a suggestion or motivation to modify Wight in the manner proposed. The Examiner is reminded that "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." MPEP 2143.01 citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

Therefore, the Applicant requests that the rejection of Claims 8, 12, 27, 23 and 25-26 be withdrawn. The individual basis for the rejection of these Claims 8 and 25-26 are addressed below.

Claim 8

The Examiner asserts that "laser cavities are well known to include index gratings as a means for selecting a wavelength of the cavity." The Examiner further asserts that "it would have been obvious to one skilled in the art to include an index grating so that one may change the wavelength of the emitted light." As pointed out above, the Applicant submits that the Examiner has not shown that Wight discloses a laser cavity. Further, the device disclosed by Wight is directed at optical beam steering applications, as described above. Since Wight is concerned with optical beam steering, why would one skilled in the art wish to modify Wight to allegedly change the wavelength of the light, since such a change has nothing to do with the beam steering goal of the device. It appears that the Examiner asserts that Wight can be modified based solely on the fact that Wight can be modified. The Examiner has not shown any motivation to make the proposed modification. Therefore, the Applicant submits that the Examiner has not established a *prima facie* case for obviousness of Claims 8 based on Wight.

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Claim 12

As indicated above, Claim 12 should be allowable based upon its dependence on Claim 9.

Further, the Examiner asserts that "end pumping of laser mediums is well known in the art." The Examiner further asserts that "it would have been obvious to one skilled in the art to end pump the laser medium as a matter of obvious design choice." As pointed out above, the Applicant submits that the Examiner has not shown that Wight teaches a laser cavity, much less, laser medium. Even if the Wight is presumed to teach a laser device, where would one end pump the device? Wight specifically refers to a electro-optic waveguide device in which, presumably, light is applied to one end of the device and is output at the other end of the device as beam steered light. End pumping may interfere with this operation. It appears that the Examiner asserts that Wight can be modified based solely on the fact that Wight can be modified. The Examiner has not shown any motivation to make the proposed modification. Therefore, the Applicant submits that the Examiner has not established a *prima facie* case for obviousness of Claim 12 based on Wight.

Claims 25 and 26

Regarding Claims 25 and 26, the Examiner refers to the "traveling wave structure" allegedly disclosed in Wight. However, the Examiner has not pointed out where Wight makes such a disclosure. Therefore, the Applicant is unable to address the Examiner's assertion that the alleged traveling wave structure of Wight can be modified, since the Applicant has no idea as to what structure in Wight the Examiner is referring to. As such, the Applicant submits that the Examiner has not established a *prima facie* case of obviousness for Claims 25 and 26 based on Wight.

Claim 19 based on Wight in view of Laakmann

As indicated above, during the telephone interview of November 19, 2003, Examiner Ip indicated that Claims 18 was allowable. Hence, the Applicant submits that Claim 19 dependent on Claim 18, is also allowable.

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Applicant's Admitted Prior Art

As discussed above, during the telephone interview on November 19, 2003, Examiner Ip indicated that Figure 1 of the present application disclosed the invention as claimed in Claims 1 and 24. The Applicant again notes that the Applicant's Admitted Prior Art was not cited in rejecting any of the claims in the present Office Action, so a rejection on this grounds would constitute a new grounds for rejection. If the Examiner maintains this rejection in a subsequent Office Action, the Applicant respectfully requests that the Examiner clearly explain the reasons for such a rejection and make the subsequent Office Action a non-final Office Action.

However, to again expedite the prosecution of the present application, the Applicant provides the following comments to distinguish the invention as claimed from the apparatus as shown in Figure 1 of the present application. Specifically, it is noted that Figure 1 shows a laser cavity 10 comprising an optical gain section 11 combined with a phase modulator 13. Electrodes 17 are provided to change the index of refraction within the phase modulator section.

On the other hand, Claim 1 recites, in part, "said laser cavity having a length dimension and a width dimension . . . and means for applying a uniform electric field across said laser cavity, said electric field propagating in a direction substantially perpendicular to the direction of laser light within the laser cavity and having substantially the same intensity along the length dimension of the laser cavity." (Underlining added for emphasis). The Applicant submits that the disclosure related to Figure 1 of the present application does not, at least, teach, describe or suggest the elements of Claim 1 emphasized by the underlining above.

Claim 24 recites, in part, "a traveling wave structure disposed to propagate an electric field transverse to the direction of propagation of the laser light, wherein the traveling wave structure applies the electric field uniformly across said laser cavity to uniformly change an index of refraction of said electrically sensitive material." (Underlining added for emphasis). The Applicant submits that the disclosure related to Figure 1 of the present application does not, at least, teach, describe or suggest the elements of Claim 24 emphasized by the underlining above.

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Conclusion

The Applicant respectfully submits that the Examiner has not shown that the claims of the application are indefinite under 35 U.S.C. 112, second paragraph. The Applicant further submits that the Examiner has not shown that the claims of the application are anticipated or made obvious by the cited references. In view of the above, reconsideration and allowance of the pending claims are respectfully solicited.

As discussed above, Examiner Ip indicated that the Applicant's Admitted Prior Art may be relied upon in rejecting on or more claims. The Applicant respectfully submits that if a subsequent Office Action should base the rejection of any claims on the Applicant's Admitted Prior Art, that Office Action should be made non-final, since the rationale for reliance on the Applicant's Admitted Prior Art was not fully explained during the telephone interview of November 19, 2003.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office at facsimile number 703-872-9318 and addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

Respectfully submitted,

December 1, 2003

(Date of Transmission)

Ross A. Schmitt

(Name of Person Transmitting)



(Signature)

12-1-2003

(Date)

Encl.: Interview Request Form



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Applicant Initiated Interview Request Form

Application No.: 09/838,676 First Named Applicant: Hayes
Examiner: James A. Menefee Art Unit: 2828 Status of Application: Pending

Tentative Participants:

(1) Ross A. Schmitt (2) Examiner Menefee
(3) Examiner TD (4) _____

Proposed Date of Interview: 11/19 Proposed Time: 2 (AM/PM)

Type of Interview Requested:

(1) ☒ Telephonic (2) ☐ Personal (3) ☐ Video Conference

Exhibit To Be Shown or Demonstrated: ☐ YES ☒ NO
If yes, provide brief description: _____

Issues To Be Discussed

Issues (Ref., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) <u>Processual prosecution</u>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) <u>1/2, 2nd para</u>	<u>1-26</u>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
(3) <u>102/103</u>	<u>See O.A.</u>	<u>Scalise</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) <u>102/103</u>	<u>See O.A.</u>	<u>Wight</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Continuation Sheet Attached

Brief Description of Arguments to be Presented:

See draft response enclosed.
Processual prosecution has unnecessarily extended prosecution; 1/2, 2nd para -
no prima facie showing; 102/103 - both PRTS, no prima facie showing

An interview was conducted on the above-identified application on 11/19

NOTE:

This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).

This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.

Ross A. Schmitt
(Applicant/Applicant's Representative Signature)

(Examiner/SPF Signature)

This collection of information is required by 37 CFR 1.133. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1 800-PTO-9199 and select option 2.